AMENDMENTS TO THE DRAWINGS

The attached two sheets of drawings include changes to Figures 1 and 2. The two drawing sheets respectively replace the original drawing sheets having Figures 1 and 2 thereon. In Figure 1, the box 10 is now labeled as "Microswitch," and the box 12 is now labeled as "IC." In Figure 2, box 12 is now labeled as "IC."

Attachment: Two Replacement sheets

REMARKS/ARGUMENTS

This case has been carefully reviewed and analyzed in view of the Official Action dated 01 September 2005. In response to the Examiner's rejections, Claim 1 has been carefully amended to further clarify the combination of elements which the Applicant regards as the invention. All claims pending in the Application, e.g. Claims 1 – 5, have been carefully amended to improve the language thereof.

In the Official Action, the Examiner objected to the drawings because box 12 and 10 should be labeled as "Control Circuit" and "Microswitch", respectively. Accordingly, Figures 1 and 2 of the patent drawings have been amended. Specifically, in Figure 1, the box 10 is now labeled as "Microswitch". Box 12 of Figure 1 is now labeled as "IC". In Figure 2, box 12 is labeled as "IC". It is respectfully submitted, that the box 12 has been labeled as "IC" (not as "Control Circuit" as suggested by the Examiner) because the original specification always refers to reference numeral 12 as "integrated circuit" (IC). Corrected formal drawing sheets in compliance with 37 CFR 1.121(d) are attached to this Amendment.

In the Official Action, Claims 1 – 5 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Accordingly, Claims 1 – 5 have been amended to clarify the subject matter regarded by the Applicant as the invention, and to improve the language thereof.

It is respectfully submitted, that it is believed that by the amendments to Claims 1 – 5, 35 U.S.C. § 112 rejection has been obviated; and the same is respectfully requested.

Claims 1 and 2 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Uotome et al., U.S. Patent 6,911,884; and Claims 3 – 5 were rejected under 35 U.S.C. § 103(a), as being unpatentable over Uotome et al. and further in view of Stibitz, U.S. Patent 2,331,514. Prior to consideration of the distinguishing features separating the present invention from the cited prior art, it is believed that a review of the cited references is in order.

Uotome et al., the main reference cited by the Examiner, is directed to an electromagnetic switching apparatus. The apparatus includes a housing C, fixed terminals 2 having fixed contacts 2a, a moveable contact piece 3 which is moveable toward and away from the fixed contacts 2a, a moveable iron core 8 which is movable in one direction, a cylindrical member 10 with a dozed bottom for housing a movable iron core 8 therein, a movable shaft 4 coupled to the movable iron core 8, a compression spring 6 which urges the movable contact piece 3 in such a direction as to urge movable contact 3a towards the corresponding fixed contacts 2a, a return spring 9 for urging the movable iron core 8 in one direction, a unit of a yoke 15 and a coil 13 for magnetically attracting and driving the movable iron core 8, a coil bobbin 14 around which the coil 13 is wound, and a control circuit block 18 for controllably energizing and de-

energizing the coil 13. The coil 13 includes a power application coil 13a and a power retaining coil 13b connected in parallel each to the other. A first switch 21 is used for applying power to the power application coil 13a for a predetermined duration in response to input of an operative signal, while a second switch 22 controls application of the power to the power retaining coil 13b.

It is respectfully submitted, that the Uotome et al. Patent fails to disclose, suggest or render obvious the structure which the Applicant regards as the invention. Specifically,

A. In contrast to the present invention, in Uotome et al., as best seen in Figures 7, and 18 – 20 thereof, the axes of the coil 13a and of the coil 13b coincide each with the other. The power application coil 13a is wound on a radially outward side of the coil 13, whereas the power retaining coil 13b is wound on a radially inward side of the coil 13. In the prior art reference, the movable iron core 8 is driven along the common axis of both coil 13a and 13b.

While in the present invention as best shown in Figure 1, the static iron core has a pair of core legs displaced each from the other relative to the longitudinal axis of the static iron core 14. The magnetic coil 7 is wound around one of the core legs of the static iron core 14, while the retaining coil 13 is wound around another core leg of the static iron core, so that the axes of the magnetic coil and the retaining coil are displaced each from the other relative to the longitudinal axis of the static iron core.

In the present invention, in contrast to Uotome et al., the movable iron core reciprocates along the longitudinal axis of the static iron core 14 between the magnetic coil and the retaining coil.

B. The structure of Uotome et al. includes two switches 21 and 22, each corresponding to a respective one of the power application coil 13a or the power retaining coil 13b. The switches 21 and 22 are normally open switches. Switch 21 is controlled to close in order to energize the power application coil 13a, while the switch 22 is controlled to close to energize the power retaining coil 13b.

While in the present invention, there is a single contact point (switch) 11 which is needed to control the operation of the entire device. The contact point 11 is a normally closed contact point (as opposed to the switches of Uotome et al. which are normally open). The contact point 11 is in its normal state (e.g. close state) when the magnetic coil 7 is to be energized, and which is open when the retaining coil 13 is to be energized.

C. Further, in contrast to the present invention, the Uotome et al. Patent teaches the control of each switch 21 and 22 to control the operation of the device either by means of a predetermined duration of the operating input signal coupled to the device (for energizing the power application coil 13a for the predetermined duration t), or the switching from the power application coil 13a to the power retaining coil 13b is controlled by circuit constant for the embodiments shown in Figure 10, where the duration t during which current is allowed to flow through

the power application coil 13a is regulated based on a circuit constant with respect to the resistor 23, the capacitor 24 and the Zener diode 25.

In contrast to the prior art reference, in the present invention, a linkage mechanism 9 is connected by one end thereof to the movable iron core to control the microswitch by another end thereof, wherein, once the movable iron core moves towards the bottom of the housing into the static iron core between the magnetic coil and the retaining coil to cause contiguous engagement between the respective movable and static silver spots, the linkage mechanism opens, by another end thereof, the normally closed contact point of the microswitch, thereby ceasing the energizing of the magnetic coil and starting energizing of the retaining coil through the integrated circuit 12.

This feature is completely missing from the Uotome et al. reference.

D. In Uotome et al., the structure includes the fixed contacts 2a and the movable contact 3a. As best shown in Figure 5, the fixed contacts 2a are disposed above the movable contact 3a. In order to attain the engagement between the contacts 2a and 3a, the iron core moves up to cause the upward motion of the movable contacts 3a towards the fixed contacts 30.

While in the present invention, the movable silver spots 3 are disposed above the static silver spots 5. During the attraction of the movable iron core 6 toward the magnetic coil 7, the movable iron core 6 moves down towards the static iron core, thereby causing the movable silver spots 3 to move down along

the longitudinal axis of the static iron core 14 to approach the static silver spots 5 which are disposed below the movable silver spots 3.

Stibitz, another reference cited by the Examiner is directed to a switching mechanism employed to establish electrical connection in telephone or other communication systems. As shown in the drawings of Stibitz, the switching mechanism includes a select coil 10, and a holding coil 11 with a conducting mechanism arranged at the cross point of these coils. The conducting mechanism of the cross point includes an upper magnetic plate 12 and a lower corresponding magnetic plate 13 with an intermediate magnetic contact spring 14. The spring 14 is tensioned to make contact with the members 15 and 16 which are the opposing members in front of the plate 12.

It is respectfully submitted, that it is believed that the Stibitz reference was cited merely for suggesting the usage thereof as a telephone or other communication connection. Stibitz fails to suggest, disclose or render obvious the structure which includes a static iron core, movable iron core, installed to reciprocate along the longitudinal axis of the static iron core between the coils, or a linkage mechanism moving along with a movable iron core to open the microswitch in order to disengage the magnetic coil from a power supply and to start energizing a retaining coil through an integrated circuit, the features which (inter alia), in combination, define the present inventive concept.

It is respectfully submitted, that the cited prior art, taken singly or in combination thereof, fail to suggest, disclose or render obvious the structure which includes:

a microswitch including a normally closed contact point connected in series with the magnetic coil, wherein the integrated circuit is connected between the magnetic coil and the retaining coil, or

a linkage member connected to the movable iron core and controlling the microswitch, and wherein, when the movable iron core moves towards the bottom of the housing into the static iron core between the magnetic coil and the retaining coil to cause contiguous engagement between respective ones of the movable and static silver spots, the linkage mechanism opens the normally closed contact point of the microswitch, thereby ceasing the energizing of the magnetic coil and starting energizing of the retaining coil through the integrated circuits; or

the static silver spots disposed below the moving silver spots; or

wherein the axes of the magnetic coil and the retaining coil are displaced each from the other relative to the longitudinal axes of the static iron core.

Claim 1, as amended, includes (among others) these limitations, clearly missing from the cited prior art, taken singly or in combination.

Accordingly, Claim 1 is believed to contain the allowable subject matter over the cited prior art, taken singly or in combination thereof; and the allowance of Claim 1, as amended, is respectfully requested.

Claims 2 – 5, directly or indirectly dependent upon Independent Claim 1, are believed each to add further limitations that are patentably distinct in addition to be dependent upon what is now believed to be patentable base claim, and therefore, allowable for at least the same reasons.

For all of the foregoing reasons, it is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectfully requested.

Respectfully submitted,
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